IN THE SPECIFICATION

Please amend the specification as follows:

[0029] Still referring to Figure 2, an exemplary method for generating a pulsed power input to x-ray tube 200 will be described. A main anode-to-cathode gap voltage 226 is pulsed at a high frequency by pulsing high voltage power supply 210. The duration of each pulse is preferably below about one millisecond. Emission current 218 and x-ray generation 220 is controlled by pulsing the extraction voltage Vac. Modern pulsed power supply generating equipment is becoming less complex and less costly. However, at higher voltages, typically about 150 kV and higher instantaneous power requirements, generating a pulsed power supply is a challenge. For a bipolar x-ray tube design, generating a pulsed voltage for one side, typically 75 kV, is relatively less complicated and is readily available. For example, using fast high voltage switches (based on solid state switching technology) on one power supply generator 230 of power supply 210 that is connected in series with another power supply generator 232 of power supply 210, each power supply generator 230, 232 at 80 kV and 1 kA instantaneous current provides an emission current rise time of 200 ns. In an alternative embodiment still referring to Figure 2, power supply 210 includes power supply generator 232 without power supply generator 230. In this embodiment, anode 206 is referenced to ground potential and cathode 206 is connected to a negative terminal of power supply generator 232 generally shown in phantom at 233 bypassing power supply generator 230.

[0040] Referring to Figures 5 and 7, the size reduction of an x-ray tube is not limited to large conventional high voltage (HV) cabling. The x-ray tube is optionally a hand held device using pulsed or resonant power for both the accelerating potential and the electron source by using unique cabling 304~~0~~ which incorporates the means to transfer optical energy and accelerating potential in a pulsed manner in a single cable. In addition, the use of pulsed power reduces the insulator size, weight and spacing requirements between the accelerating potential's conductors due to the voltage-time effect in dielectric materials.

[0041] In an exemplary embodiment, a cross-section of power cabling 304~~0~~ is illustrated in Figure 7. Power cabling 304~~0~~ includes a waveguide 320 for transferring optical energy generated by photon source 308 to photo-emitting surface 312 of cathode 204. Waveguide 320

is preferably an optical fiber bundle 322. Waveguide 320 is encased in an insulation material 324 having two electrical conductors 326 therein for transfer of electrical energy from power supply 300 to cathode 204 providing the accelerating potential between cathode 204 and anode 206.